

COVID-19 Variants Identified in Montana

Updated 9/28/2021

This report includes the counties where SARS-CoV-2 variants detected in Montana. CDC updated their COVID variant classification system. Delta is the only Variant of Concern at this time, and it is the dominant circulating strain in Montana. Every specimen collected and sequenced in September is Delta. Aside from Delta, all other former variants of concern and interest have been re-classified as Variants Being Monitored. Among Variants Being Monitored, the Mu variant has been identified in 9 specimens collected 6/13/2021–8/21/2021.

Due to the update in the variant classifications, the fact that over 99% of everything sequenced in Montana in the past two months is Delta, **we will be suspending this variant report moving forward**. MTPHL and partner labs will continue sequencing specimens to monitor the variants circulating in Montana, and we will continue to include updated graphs of variants over time in our Weekly Epi Report located on the COVID Demographics webpage:

<https://dphhs.mt.gov/publichealth/cdepi/diseases/CoronavirusMT/demographics>

For more information on [COVID variants](#) and CDC's [variant classification system](#), please visit CDC's website.

If a new variant emerges or there is information that would be useful to inform public health or clinical decision making, we will begin publishing a new variant report again.

Table 1. Cumulative SARS-CoV-2 variants detected in Montana by classification, GISAID 9/28/2021

Variant Classification	Classification Explanation	Number
Variant Being Monitored	A variant for which there are data indicating a potential or clear impact on approved or authorized medical countermeasures or that has been associated with more severe disease or increased transmission but are no longer detected or are circulating at very low levels in the United States, and as such, do not pose a significant and imminent risk to public health in the United States.	1195
Variant of Interest	A variant with specific genetic markers associated with changes to receptor binding, reduced neutralization by antibodies generated against previous infection or vaccination, reduced efficacy of treatments, potential diagnostic impact, or predicted increase in transmissibility or disease severity.	0
Variant of Concern	A variant for which there is evidence of an increase in transmissibility, more severe disease (increased hospitalizations or deaths), significant reduction in neutralization by antibodies generated during previous infection or vaccination, reduced effectiveness of treatments or vaccines, or diagnostic detection failures.	1483
Variant of High Consequence	A variant of high consequence has clear evidence that prevention measures or medical countermeasures (MCMs) have significantly reduced effectiveness relative to previously circulating variants.	0

Table 2. Cumulative SARS-CoV-2 variants detected in Montana by location and lineage, MTDPHHS, 9/28/2021

County	Variant of Concern	Variants Being Monitored							Total # Cases
	Delta (B.1.617.2+AY)	Alpha (B.1.1.7+Q)	Epsilon (B.1.427, B.1.429)	Eta (B.1.525)	Gamma (P.1)	Iota (B.1.526)	Mu (B.1.621)		
Beaverhead	13	4	2	0	0	0	0	19	
Big Horn	34	4	0	0	2	0	0	40	
Blaine	1	8	0	0	0	0	0	9	
Broadwater	4	9	0	0	0	0	0	13	
Carbon	1	2	0	0	0	0	0	3	
Cascade	136	70	11	0	3	4	0	224	
Chouteau	0	1	1	0	0	0	0	2	
Custer	2	2	1	0	0	0	0	5	
Daniels	7	0	0	0	0	0	0	7	
Dawson	6	1	0	0	0	0	0	7	
Deer Lodge	6	3	0	0	1	0	0	10	
Fallon	1	0	0	0	0	0	0	1	
Fergus	14	2	0	0	0	0	0	16	
Flathead	72	73	6	2	5	10	1	169	
Gallatin	58	45	8	1	3	5	0	120	
Glacier	13	6	1	0	3	0	0	23	
Golden Valley	1	0	0	0	0	0	0	1	
Granite	3	0	0	0	0	0	0	3	
Hill	17	18	4	0	0	4	0	43	
Jefferson	15	9	1	0	0	0	0	25	
Lake	42	6	2	0	0	0	0	50	
Lewis & Clark	62	33	5	0	1	10	0	111	
Liberty	5	1	1	0	0	0	0	7	
Lincoln	29	1	5	0	0	0	0	35	
Madison	22	6	5	0	5	0	0	38	
McCone	3	1	0	0	0	0	0	4	
Meagher	1	0	2	0	2	0	0	5	
Mineral	21	12	0	0	0	0	0	33	
Missoula	101	78	8	2	9	6	4	208	

	Variant of Concern	Variants Being Monitored							
County	Delta (B.1.617.2+AY)	Alpha (B.1.1.7+Q)	Epsilon (B.1.427, B.1.429)	Eta (B.1.525)	Gamma (P.1)	Iota (B.1.526)	Mu (B.1.621)	Total # Cases	
Musselshell	4	2	0	0	0	0	0	6	
Park	2	4	0	0	0	2	0	8	
Phillips	0	0	2	0	0	0	0	2	
Pondera	0	1	0	0	0	0	0	1	
Powder River	1	3	0	0	0	0	0	4	
Powell	9	3	2	0	1	3	0	18	
Prairie	2	0	1	0	0	0	0	3	
Ravalli	8	44	0	0	1	3	0	56	
Richland	10	2	1	0	0	0	0	13	
Roosevelt	6	2	11	0	0	0	0	19	
Rosebud	17	0	0	0	0	0	0	17	
Sanders	7	3	0	0	0	2	0	12	
Sheridan	0	0	1	0	0	0	0	1	
Silver Bow	30	5	14	0	1	0	0	50	
Stillwater	0	7	0	0	0	0	0	7	
Sweet Grass	2	7	1	0	0	0	0	10	
Teton	12	5	1	0	0	0	0	18	
Toole	2	2	0	0	0	0	0	4	
Valley	5	3	1	0	0	0	0	9	
Wheatland	4	1	0	0	0	0	0	5	
Yellowstone	52	65	2	0	1	1	0	121	
Total	863	554	100	5	38	50	5	1615	
Percentage	53%	34%	6%	<1%	2%	3%	<1%		

Note 1: The distribution of variants can be influenced by local testing capabilities. As a result, the data in table 2 may not reflect a standardized, statewide sample of variants. Data above are collected in collaboration with partners including, MSU, UM, Fyr Diagnostics, CDC, and other national reference labs.

Table 3. Outcome of patients infected with SARS-CoV-2 variants in Montana, by lineage, 9/28/2021

	Variant lineage	Not Hospitalized	Hospitalized	Percentage Hospitalized	Deceased
Variant of Concern	Delta (B.1.617.2+AY)	458	109	19.2%	18
Variants Being Monitored	Alpha (B.1.1.7+Q)	424	40	8.6%	6
	Epsilon (B.1.427, B.1.429)	83	5	5.7%	1
	Eta (B.1.525)	3	0	0.0%	0
	Gamma (P.1)	25	6	19.4%	1
	Iota (B.1.526)	39	3	7.1%	0
	Mu (B.1.621)	4	1	20.0%	1

Data in table 3 show the hospitalization and death status for cases where that information is recorded in Montana's communicable disease database. Approximately 20% percent of cases infected with the Delta variant were hospitalized and 18 died.

COVID Breakthrough Cases

Breakthrough infection surveillance began in Montana on February 15, 2021. A breakthrough COVID-19 infection is defined as a positive SARS-CoV-2 RNA or antigen detection in a respiratory specimen that is collected ≥ 14 days after completing the primary COVID-19 vaccine series of an FDA-authorized COVID-19 vaccine. Depending on the specific vaccine administered, completion of series could be one or two doses of vaccine.

As of 9/28/21, Montana reports 6,196 cases of confirmed breakthrough disease, which includes 377 hospitalizations and 75 deaths. 208/309 with subtyping performed are known to be infected with Delta.

Table 4. SARS-CoV-2 variants detected in Montana breakthrough cases by lineage, 9/28/2021

	Variant of Concern	Variants Being Monitored							Total # Variants
		Delta (B.1.617.2+AY)	Alpha (B.1.1.7+Q)	Epsilon (B.1.427, B.1.429)	Eta (B.1.525)	Gamma (P.1)	Iota (B.1.526)	Mu (B.1.621)	
Breakthrough Cases	208	68	9	2	12	7	3		309

Variant Trends

Of 2,828 samples sequenced and reported to [GISAID](#) since January 2021, Delta has been the predominant circulating strain in Montana for the past two months.

Figure 3 displays the percentage of each variant detected that week, among all samples sequenced that were collected that week. For example, the week ending May 1, 136 samples were sequenced and 92 (68%) were the Alpha variant (light yellow bar) and 26 (19%) were not variants of concern or interest (dark blue bar). Among samples collected during August and September, 1045 samples have been sequenced so far, and 1033 (99%) of those are Delta (dark orange bar). All specimens collected and sequenced in September were Delta.

The overall trends in variants shows that, March through June, the Alpha variant was predominant. Beginning in July, the Delta variant has been detected most often among sequenced samples, and is currently the dominant variant in Montana. Not all samples have enough genetic material to be sequenced. The charts below reflect information on specimens that were sequenced and reported to GISAID.

CDC updated their COVID variant classification system recently. Delta is the only Variant of Concern at this time, and it is the dominant circulating strain in Montana. Every specimen collected and sequenced in September is Delta. Aside from Delta, all other former variants of concern and interest have been re-classified as Variants Being Monitored. Among Variants Being Monitored, the Mu variant has been identified in 9 specimens collected 6/13/2021–8/21/2021.

Figure 1. Number of COVID-19 Samples Sequenced by Collection Date, Montana, 9/28/2021 (n=3321)

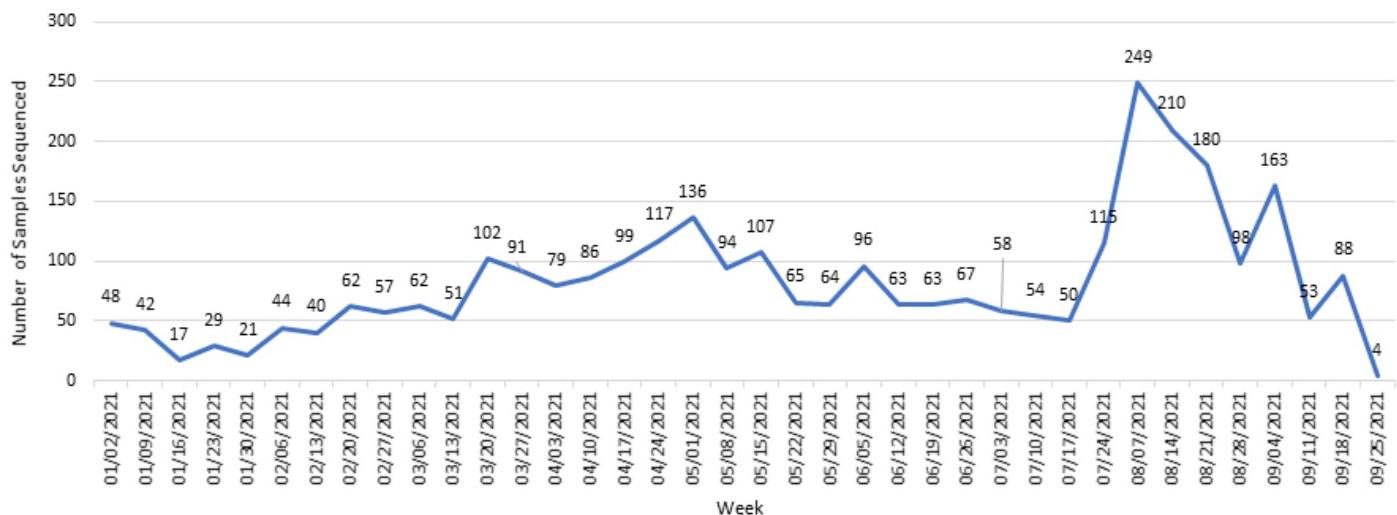


Figure 2. Percent of COVID-19 Variants in Sequenced Samples by Collection Date, Montana, 9/28/2021

